



*A*

*Report on*

*Short Term Training Program*

*on*

***“Applications of Power Converters in Electrical Engineering”***

***October 17 - 21, 2023***



**Organized by:**

**Department of Electrical Engineering**

**&**

**IE (I) Student Chapter**

**Swami Keshvanand Institute of Technology, Management &  
Gramothan, Jaipur**

***Submitted by:***

Dr. Prateek Kumar Singhal (Associate Professor)

Mr. Tarun Naruka (Associate Professor)

Mr. Vikas Mahala (Assistant Professor & Deputy Head)

Mr. Deepak Saini (Assistant Professor)

## **Department of Electrical Engineering, SKIT M&G Jaipur**

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## **1. About SKIT**

SKIT (SKIT), inspired from the learnings of Swami Keshvanand, was established in the year 2000 by Technocrats and Managers Society for Advanced Learning. Today, the Institute is recognized as one of the centers of academic excellence in Northern India. The Institute is affiliated to Rajasthan Technical University, Kota for offering Ph. D., Postgraduate and Graduate Courses in Engineering and Management. Located in the Pink City Jaipur, which is a blend of traditional history and modern outlook, SKIT is putting in efforts for making industry ready engineers and managers through effective Industry –Institute Interface. Apart from University curriculum, SKIT also pursues activities for research and development in various fields. The green landscaping, aesthetic elegance of arches and the vibrant pursuit of knowledge by the young aspirants make the environment serene, pleasant and dynamic. Students joining the institute share the box full of opportunities for professional and personal development through an environment of practical orientation, industrial interaction and student led activities which help the students to develop good communication skills, integrated personality and greater competitive spirit.

### **Our Inspiration**

**"Mass illiteracy is the root cause behind backwardness of India. If we want speedy progress of nation, we need to root it out as early as possible."**

**– Swami Keshvanand**

Swami Keshvanand, an orphan, illiterate, nomadic man who never received formal education, was the founder of more than 300 schools, 50 hostels and innumerable libraries, social service centers and museums. Swami Keshvanand had a deep understanding of the rural society of the desert region. He had explained the peculiarities of the desert region, identified the problems and suggested appropriate and logical solutions. It was Swami Keshvanand's lifelong endeavors to eradicate social evils like untouchability, child marriage, indebtedness, poverty, backwardness, alcohol abuse, moral dissipation etc.

### **Vision**

To promote higher learning in advanced technology, management skills and industrial research to make our country a global player.

### **Mission**

To promote quality education, training and research in field of Engineering by establishing effective interface with industry and to encourage faculty to undertake industry sponsored projects for students.

### **Quality Policy**

We are committed to 'achievement of quality' as an integral part of our institutional policy by continuous self-evaluation and striving to improve ourselves. Institute would pursue quality in

- All its endeavors like admissions, teaching-learning processes, examinations, extra and co-curricular activities, industry institution interaction, research & development, continuing education, and consultancy.
- Functional areas like teaching departments, Training & Placement Cell, library, administrative office, accounts office, hostels, canteen, security services, transport, maintenance section and all other services.”

## 2. Approval Letter of STTP



Swami Keshvanand Institute of Technology, Management &  
Gramothan, Jaipur, Rajasthan-302017  
Department of Electrical Engineering



### STTP Features:

**Hands-On Demonstrations:** Practical exercises and simulations to reinforce theoretical knowledge.

**Guest Lectures:** Experts from the industry sharing their experiences and real-world applications.

**Lab Sessions:** Access to well-equipped laboratories for hands-on learning experiences.

**Certificate of Participation:** Participants will receive certificates upon successful completion of STTP.

**Target Audience:** In-house undergraduate students of Electrical Engineering

### Resource Requirements:

- Lecture rooms with audiovisual equipment.
- Laboratory facilities for hands-on experiments.
- STTP materials, components, and tools.
- Experienced faculty members and industry professionals to conduct sessions.


**Budget:** A proposed budget plan covering expenses for materials, equipment, refreshments, and guest speakers is as follows:

S.N	Item	Total
1	Expert remuneration	30,000/-
2	Printing & other materials, equipment, refreshments and stationary items	10,000/-
	<b>Total</b>	<b>40,000/-</b>

We kindly request your approval and support to organize this STTP in Electrical Engineering Department. This initiative aligns with our commitment to providing a comprehensive and practical education to our students.

  
Dr. Prateek Kumar Singh  
Associate Professor, EED & STTP Coordinator

*Approved*  
*11/10/2023*  
*Not permitted*  
*11/10/23*

  
Dr. Sarfaraz Nawaz  
Head-EED

### 3. Documents Related to Finance

## Swami Keshvanand Institute of Technology, Management & Gramothan, Jaipur

### Department of Electrical Engineering

Name of Event	5 days Short Term Training Program for Students on <i>"Applications for Power Converters in Electrical Engineering"</i>
Date	17-21 October, 2023

### Total Expenditure Details

S.N	Particular	Type	Amount in Rs/-	Remark
1	Dr. Sunil Kumar Gupta	Expert	3000	To be paid
2	Dr. Nand Kishore Gupta	Expert	3000	To be paid
3	Dr. Manoj Kumawat	Expert	3000	To be paid
4	Dr. Devendra Somwanshi	Expert	3000	To be paid
5	Miscellaneous	Stationary, Printing, Refreshment, Petrol etc.	6233	Paid
Total Expenditure			18,233/-	

verified  
Dr. Prateek Singhal



Dr. Sarfaraz Nawaz

Head, EE Dept.

#### **4. Committee of STTP**

##### **Convener:-**

**Dr. Prateek Kumar Singhal**

Associate Professor

Phone: 7793027050

Email: prateek.singhal@skit.ac.in

##### **Faculty Coordinators:-**

**Mr. Tarun Naruka**

Associate Professor

Phone: 7665880996

Email: tarun.naruka@skit.ac.in

**Mr. Vikas Mahala**

Assistant Professor

Phone: 8561811965

Email: vikas.mahala@skit.ac.in

**Mr. Deepak Saini**

Assistant Professor

Phone: 9024879584

Email: deepak.saini@skit.ac.in

##### **Student Coordinators:-**

**Mr. Shreyash Sharma**

III Year (EE Dept., SKIT M&G Jaipur)

**Mr. Saurabh Kumar Pushp**

III Year (EE Dept., SKIT M&G Jaipur)

## 5. STTP Brochure

**Patrons**  
Shri Raja Ram Meel, Patron, SKIT  
Shri Surja Ram Meel, Chairman, SKIT

**Advisory Committee**  
Shri Jaipal Meel, Director, SKIT  
Prof. S. L. Surana, Director (Academics), SKIT  
Mrs. Rachna Meel, Registrar, SKIT  
Prof. Ramesh Kumar Pachar, Principal, SKIT  
Prof. R.K.Jain, Dean, SKIT  
Dr. Sarfaraz Nawaz, HOD (EE), SKIT  
Prof. Anil Choudhary, HOD (IT), SKIT  
Prof. Mukesh Gupta, HOD (CSE), SKIT  
Prof. Mukesh Arora, Head (ECE & OFA), SKIT  
Prof. Dheeraj Joshi, HOD (ME), SKIT  
Prof. D. K. Sharma, HOD (CE), SKIT  
Prof. Rohit Mukherjee, Incharge, I Year, SKIT  
Prof. Amber Srivastava, Head (Maths), SKIT  
Dr. Sharda Soni, Head (Chemistry), SKIT  
Prof. Brajraj Sharma, Head (Physics), SKIT  
Prof. Neha Purohit, Head (English), SKIT  
Prof. Ona Ladiwal, HOD (DMS), SKIT  
Prof. Sangeeta Vyas, Head (OSA), SKIT

**Faculty Members**

Dr. Dhanraj Chitara	Mrs. Deepti Arela
Dr. Virendra Sangtani	Mr. Jinendra Rahul
Dr. Suman Sharma	Mr. Jitendra Singh
Dr. Pooja Jain	Mr. Ajay Bharadwaj
Dr. Jyoti Shukla	Mohd. Yusuf Sharif
Dr. Sanjeev Kumar	Mr. Vivek Sharma
Mr. Abhishek Gupta	Mr. Avadhesh Sharma
Mr. Ankush Tandon	Mr. Garvit Gupta
Mr. Bharat Modi	Mr. Mahesh Meena
Ms. Smriti Jain	

**REGISTRATION**

To join this workshop, you are requested to register your name by clicking the following registration link or scanning QR code:  
<https://forms.gle/HHfWYwzEEGzvm2c6>



**CONVENER**

**Dr. Prateek Kumar Singhal**  
Associate Professor  
Phone: 7793027050  
Email: prateek.singhal@skit.ac.in

**COORDINATORS**

**Mr. Tarun Naruka**  
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Phone: 7665880996  
Email: tarun.naruka@skit.ac.in

**Mr. Vikas Mahala**  
Assistant Professor  
Phone: 8561811965  
Email: vikas.mahala@skit.ac.in

**Mr. Deepak Saini**  
Assistant Professor  
Phone: 9024879584  
Email: deepak.saini@skit.ac.in

**STUDENT COORDINATORS**  
**Mr. Shreyash Sharma** Mr. Saurabh Kumar Pushp  
III Year (EE Dept., SKIT) III Year (EE Dept., SKIT)

A  
**Short Term Training Program (STTP) for Students**




on

**"Application of Power Converters in Electrical Engineering"**

17<sup>th</sup> - 21<sup>st</sup> October, 2023 (05 Days)




Organized by  
**Department of Electrical Engineering,**  
&  
**Institution of Engineers (IEI)**




**Swami Keshvanand Institute of Technology,**  
**Management & Gramothan,**  
**Jaipur- 302017**  
[www.skit.ac.in](http://www.skit.ac.in)

**About SKIT, Jaipur**



Swami Keshvanand Institute of Technology, Management & Gramothan (SKIT) has been Ranked No.1 Engineering Institute in Rajasthan by RTU Kota consecutively for the last six years. The institute was established in the year 2000 by a team of committed professionals and academicians. During all the past years SKIT has emerged as a premier centre of technical education not only in Rajasthan but also in Northern India, which has been realized through efficient and dedicated faculty members, innovative teaching learning methods, and core value of discipline. The various undergraduate programmes of the institute are accredited by the National Board of Accreditation (NBA). SKIT is only affiliated technical institute in Rajasthan to have earned an A++ grade by National Assessment And Accreditation Council (NAAC).

**Department of Electrical Engineering**

The Department of Electrical Engineering is distinctly focused towards integrating academics with cutting edge technology in the field of Electrical Engineering. The B. Tech. Program has been accredited five times in succession by NBA since 2009 Department is also conducting M. Tech and

PhD Program in Power Systems specialization. All efforts are subtly harnessed with the aim of preparing the budding engineers to face the challenging dimensions of technical excellence in areas such as Electrical Machines & Drives, Control & Automation, Power Systems Design, Power Electronics and MATLAB Applications. The department puts in consistent efforts for field exposure to students through various research-oriented projects taken up for meeting the industry demands. The department offers a perfect blend of Electrical, Electronics and Computer related courses to help students pursue a professional career or higher studies.

**About the Workshop**

This STTP aims to provide students with valuable insights into the world of power converters, an essential technology in modern electrical engineering. This STTP will cover various aspects of power converters, including: Introduction to Power Converters: Basics of power conversion and their significance in electrical systems.  
Types of Power Converters: Understanding different types, such as DC-DC converters, DC-AC inverters, and more.  
Applications in Renewable Energy: Exploring how power converters are vital in renewable energy systems like solar and wind.  
Motor Drives: Learning about motor control techniques using power converters in industrial applications.  
Grid Integration: Understanding how power converters enable the integration of renewable sources into the electrical grid.

**STTP Features:**

- Hands-On Demonstrations: Practical exercises and simulations to reinforce theoretical knowledge.
- Guest Lectures: Experts from the industry sharing their experiences and real-world applications.
- Lab Sessions: Access to well-equipped laboratories for hands-on learning experiences.
- Certificate of Participation: Participants will receive certificates upon successful completion of STTP.
- Target Audience: In-house undergraduate students of Electrical Engineering

**Workshop Schedule**

The training program will be conducted from 17<sup>th</sup>-21<sup>st</sup> October 2023, in which one session will be carried on each day.

Date	Session
17 <sup>th</sup> -21 <sup>st</sup> October, 2023	12:30 to 02:30 PM



## 6. STTP Poster



A  
SHORT TERM TRAINING PROGRAM  
(STTP)  
FOR STUDENTS  
ON

**"Application of Power Converters in  
Electrical Engineering"**

EMINENT EXPERTS



**Dr. Sunil Kumar Gupta**  
Dean (R&D)  
Poornima University,  
Jaipur



**Mr. Dinesh Kumar**  
SKIT, Jaipur



**Dr. Nandkishore Gupta**  
Poornima University, Jaipur




**Dr. Manoj Kumawat**  
NIT, Delhi



**Dr. Devendra Somwanshi**  
Poornima College of  
Engineering, Jaipur

Organized by  
**IE(I) Student Chapter**  
&  
**Department of Electrical Engineering**  
Swami Keshvanand Institute of Technology,  
Management & Gramothan, Jaipur


## 7. STTP Schedule



Department of Electrical Engineering,  
Swami Keshvanand Institute of Technology, Management & Gramothan, Jaipur  
Organizing

**A**  
**Short Term Training Program (STTP)**  
**for Students**  
**on**  
**"Application of Power Converters in Electrical Engineering"**  
**17<sup>th</sup> - 21<sup>st</sup> October, 2023 (05 Days)**

**STTP Schedule**



Date	Time	Venue	Speaker Name	Title of Session
<b>Day 1</b>				
Tuesday, 17-10-2023	12:30 PM to 02:30 PM	JC Bose Seminar Hall	Dr. Sunil Kumar Gupta	Understanding Inverters: From Basics to Advanced Concepts
<b>Day 2</b>				
Wednesday, 18-10-2023	12:30 PM to 02:30 PM	6F : Lab 10	Mr. Dinesh kumar	Power Converters : Industrial Aspect
<b>Day 3</b>				
Thursday, 19-10-2023	12:30 PM to 02:30 PM	6F : Lab 10	Dr. Nandkishore Gupta	Issues and challenges in Power Converters
<b>Day 4</b>				
Friday, 20-10-2023	12:30 PM to 02:30 PM	6F : Lab 10	Dr. Manoj Kumawat	Grid Integration
<b>Day 5</b>				
Saturday, 21-10-2023	12:30 PM to 02:30 PM	6F : Lab 10	Dr. Devendra Somwanshi	Role of Power Converter in Solar PV

## 8. List of Registered Candidates

S.N.	Name	College Id	RTU Roll Number	Semester	Branch
1	Aman Maru	B210704	21ESKKEE005	5th	EE
2	Ankita Jangir	B210761	21ESKKEE006	5th	EE
3	Devesh Nagar	B210597	21ESKKEE015	5th	EE
4	Divya Jain	B210980	21ESKKEE018	5th	EE
5	Dushyant Sharma	L220036	22ESKKEE201	5th	EE
6	Kalpith Mathur	B211131	21ESKKEE027	5th	EE
7	Kanishk Khandal	B210786	21ESKKEE029	5th	EE
8	Kanishk Saini	B211106	21ESKKEE030	5th	EE
9	Kannu Sharma	B211099	21ESKKEE031	5th	EE
10	Karan Mourya	B211150	21ESKKEE032	5th	EE
11	Kartikey Nehra	B210623	21ESKKEE033	5th	EE
12	Keshav Gautam	B210281	21ESKKEE034	5th	EE
13	Khushi Nayak	B211166	21ESKKEE035	5th	EE
14	Krati Choudhary	B211135	21ESKKEE037	5th	EE
15	Mohammed Fardeen	B210722	21ESKKEE039	5th	EE
16	Mohit Jarwal	B210593	21ESKKEE040	5th	EE
17	Naveen Ghosliya	B210514	21ESKKEE041	5th	EE
18	Navin Suthar	B210423	21ESKKEE042	5th	EE
19	Palak	B211126	21ESKKEE045	5th	EE
20	Pankaj Kumar Samota	B210982	21ESKKEE046	5th	EE
21	Parag Saini	B211035	21ESKKEE047	5th	EE
22	Pradeep Singh Rajawat	B210591	21ESKKEE049	5th	EE
23	Pranshul Singh	B210248	21ESKKEE050	5th	EE
24	Preeti Gupta	B210460	21ESKKEE051	5th	EE
25	Priyanshu Sharma	B211085	21ESKKEE052	5th	EE
26	Rahul Gangwal	b211057	21ESKKEE055	5th	EE
27	Rahul Singh Panwar	B211079	21ESKKEE057	5th	EE
28	Rakesh Swami	B210506	21ESKKEE059	5th	EE
29	Rashi Chouhan	B211112	21ESKKEE060	5th	EE
30	Ravi Kumar Meena	B211101	21ESKKEE061	5th	EE
31	Ronak Kumar	B210984	21ESKKEE063	5th	EE
32	Sachin Meena	B210701	21ESKKEE064	5th	EE
33	Sakshya Mawaliya	B210985	21ESKKEE066	5th	EE
34	Saloni	B211134	21ESKKEE067	5th	EE
35	Sarthak Verma	B210347	21ESKKEE068	5th	EE
36	Saurabh Kumar Pushp	B210706	21ESKKEE069	5th	EE
37	Shankar Yogi	b210473	21ESKKEE070	5th	EE
38	Shreyansh Meena	B211091	21ESKKEE073	5th	EE
39	Shreyash Sharma	B210374	21ESKKEE074	5th	EE
40	Sumit Sarsar	B210688	21ESKKEE075	5th	EE
41	Tanu Meena	B210986	21ESKKEE076	5th	EE
42	Vipendra Singh	B210695	21ESKKEE078	5th	EE
43	Virendra Singh Rathore	B211107	21ESKKEE079	5th	EE
44	Vivek Singh	B210257	21ESKKEE080	5th	EE
45	Yash Agarwal	B210398	21ESKKEE081	5th	EE
46	Yash Kasliwal	L220017	22ESKKEE203	5th	EE
47	Yash Mina	B210613	21ESKKEE082	5th	EE

## 9. Attendance of STTP

STTP-APCEE Attendance (17-21 Oct. 2023)							
S.No.	RTU Roll Number	Name	Day-1	Day-2	Day-3	Day-4	Day-5
1	21ESKEE005	Aman Maru	✓	P		P	P
2	21ESKEE006	Ankita Jangir	✓	P	P		P
3	21ESKEE015	Devesh Nagar	✓	P		P	P
4	21ESKEE018	Divya Jain		P	P		P
5	22ESKEE201	Dushyant Sharma	✓	P		P	P
6	21ESKEE027	Kalpiti Mathur	✓	P	P		P
7	21ESKEE029	Kanishk khandal	✓	P		P	P
8	21ESKEE030	Kanishk Saini	✓	P	P	P	P
9	21ESKEE031	Kannu Sharma	✓	P	P	P	P
10	21ESKEE032	Karan mourya	✓	P	P	P	P
11	21ESKEE033	Kartikey Nehra	✓	P	P	P	P
12	21ESKEE034	Keshav Gautam	✓	P	P	P	P
13	21ESKEE035	Khushi Nayak	✓	P	P	P	P
14	21ESKEE037	Krati choudhary					
15	21ESKEE039	Mohammed fardeen	✓	P	P		
16	21ESKEE040	Mohit Jarwal		P	P		
17	21ESKEE041	Naveen Ghosliya				P	
18	21ESKEE042	Navin suthar	✓	P	P	P	P
19	21ESKEE045	Palak	✓	P	P	P	P
20	21ESKEE046	Pankaj Kumar Samota	✓	P	P	P	P
21	21ESKEE047	Parag saini	✓	P	P	P	P
22	21ESKEE049	Pradeep Singh Rajawat	✓	P	P	P	P
23	21ESKEE050	Pranshul Singh	✓	P	P	P	
24	21ESKEE051	Preeti Gupta	✓	P	P	P	P
25	21ESKEE052	Priyanshu Sharma	✓	P	P	P	P
26	21ESKEE055	Rahul Gangwal	✓	P		P	P
27	21ESKEE057	Rahul Singh Panwar	✓	P	P	P	P
28	21ESKEE059	Rakesh Swami	✓	P	P	P	P
29	21ESKEE060	Rashi Chouhan	✓	P		P	P
30	21ESKEE061	Ravi Kumar Meena	✓	P			P
31	21ESKEE063	Ronak Kumar	✓	P			
32	21ESKEE064	Sachin Meena	✓	P			P
33	21ESKEE066	Sakshya mawaliya	✓	P	P		P
34	21ESKEE067	Saloni	✓	P	P	P	P
35	21ESKEE068	Sarthak verma	✓	P			
36	21ESKEE069	Saurabh kumar pushp	✓	P	P	P	P
37	21ESKEE070	Shankar yogi	✓				P
38	21ESKEE073	Shreyansh Meena	✓				
39	21ESKEE074	Shreyash Sharma	✓	P	P	P	P
40	21ESKEE075	Sumit sarsar	✓	P	P	P	P
41	21ESKEE076	Tanu Meena	✓	P		P	P
42	21ESKEE078	Vipendra Singh	✓	P		P	P
43	21ESKEE079	Virendra Singh Rathore		P	P	P	P
44	21ESKEE080	Vivek Singh	✓		P		P
45	21ESKEE081	Yash agarwal	✓	P			
46	22ESKEE203	Yash kasliwal	✓	P			
47	21ESKEE082	Yash mina	✓	P	P	P	P

## 10. Glimpses of STTP

















## 11. Feedback of STTP

S.No	Name	How was the content of the workshop	Which topics or aspects of the workshop did you find most interesting or useful	What is your overall assessment of the event?
1	Keshav Gautam	4	Day 4	5
2	Aman Maru	5	Day 2	5
3	Ankita Jangir	4	Day 5	3
4	Devesh Nagar	5	Day 4	5
5	Divya Jain	4	Day 4	5
6	Kalpith Mathur	4	Day 2	3
7	Kanishk khandal	5	Day 4	4
8	Kanishk Saini	5	Day 5	1
9	Kannu Sharma	5	Day 4	5
10	Karan mourya	5	Day 4	4
11	Kartikey Nehra	4	Day 4	4
12	Khushi Nayak	4	Day 5	3
13	Mohit Jarwal	4	Day 3	4
14	Naveen Ghosliya	5	Day 3	4
15	Palak	3	Day 4	4
16	Parag saini	5	Day 5	5
17	Pradeep Singh Rajawat	5	Day 5	5
18	Pranshul Singh	5	Day 3	4
19	Preeti Gupta	5	Day 5	4
20	Priyanshu Sharma	5	Day 5	5
21	Rahul Gangwal	3	Day 1	3
22	Rahul Singh Panwar	5	Day 5	5
23	Rahul Singh Panwar	5	Day 4	4
24	Rakesh Swami	5	Day 3	4
25	Rashi Chouhan	4	Day 2	4
26	Ravi kumar meena	5	Day 5	5
27	Ronak Kumar	4	Day 2	4
28	Sachin Meena	2	Day 5	4
29	Sakshya mawaliya	4	Day 4	3
30	Saloni	4	Day 2	5
31	Saurabh Kumar Pushp	5	Day 5	5
32	Shankar yogi	3	Day 5	5
33	Shivam Gupta	3	Day 3	3
34	Shreyansh Meena	3	Day 1	3
35	Shreyash Sharma	5	Day 5	5
36	Sumit sarsar	5	Day 5	5
37	Tanu Meena	5	Day 2	5
38	Vipendra Singh	3	Day 4	3
39	Virendra Singh Rathore	3	Day 2	4
40	Vivek Singh	5	Day 5	5
41	Yash mina	4	Day 4	3
42	Yash kasliwal	4	Day 2	4
43	Navin suthar	5	Day 2	5
44	Dushyant Sharma	5	Day 3	5

## 12. Sample Copy of Participants Certificate

 <b>SKIT</b> श्रद्धां नमः सत्कारम्	 THE ASSOCIATION OF PROFESSIONALS IN ELECTRICAL ENGINEERING AND ELECTRONICS
<b>SWAMI KESHVANAND INSTITUTE OF TECHNOLOGY, MANAGEMENT &amp; GRAMOTHAN, JAIPUR</b>	
<h1>Certificate</h1> <p>of Participation</p>	
This is to certify that ..... has	
attended five days <b>Short Term Training Programme (STTP)</b> on " <b>Application of Power Converters in Electrical Engineering</b> " held from <b>October 17<sup>th</sup> - 21<sup>st</sup>, 2023</b> organized by <b>Department of Electrical Engineering and IE(I) Student Chapter</b> at <b>Swami Keshvanand Institute of Technology, Management and Gramothan, Jaipur.</b>	
 <b>Prof. S. L. Surana</b> Director (Academics) SKIT, JAIPUR	 <b>Dr. R.K. Pachar</b> Principal SKIT, JAIPUR
 <b>Dr. Sarfaraz Nawaz</b> Head EE Dept. SKIT, JAIPUR	 <b>Dr. Prateek Kr. Singhal</b> Convener, APCEE 2023 SKIT, JAIPUR

### 13. List of Participants who received Certificates

S. No.	Name	RTU Roll No.	Score	Email
1	Aman Maru	21ESKEE005	17 / 20	amanmaru107@gmail.com
2	Ankita Jangir	21ESKEE006	14 / 20	B210761@skit.ac.in
3	Devesh Nagar	21ESKEE015	16 / 20	b210597@skit.ac.in
4	Divya Jain	21ESKEE018	13 / 20	b210989@skit.ac.in
5	Dushyant Sharma	22ESKEE201	19 / 20	dushyantsharma3210@gmail.com
6	Kalpith Mathur	21ESKEE027	17 / 20	B211131@skit.ac.in
7	Kanishk khandal	21ESKEE029	15 / 20	kanishkkhandal6165@gmail.com
8	Kanishk Saini	21ESKEE030	16 / 20	b211106@skit.ac.in
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10	Karan mourya	21ESKEE032	19 / 20	nkmorya2@gmail.com
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## **14. Day-Wise Report**

### **Day-1**

**Date: 17-10-2023**

It was the first day of the ‘**Short Term Training Program (STTP)**’ organized by IEI Student Chapter of Electrical Engineering Department of Swami Keshvanand Institute of Technology, Management & Gramothan, Jaipur for students on “**Application of Power Converters in Electrical Engineering**”. The Guest Speaker of the day was **Dr. Sunil Kumar Gupta (Dean R&D, Poornima University, Jaipur)**. The session was commenced at 12:30 P.M. with a welcome note to the speaker by the student host.

Dr. Sunil Kumar Gupta first threw light on basics of Inverters and the basic history of Inverters. He also talked about overloading and short circuits. He discussed the history of inverters Charles Proteus Steinmetz, a pioneering electrical engineer, developed the rotary converter in the 1890s. It was an early device capable of converting AC to DC and vice versa, serving as a precursor to modern inverters. In 1920 the Vibrator Inverter was introduced and then development of static inverters in 1940s marked a significant shift away from mechanical components. Later, in 1960s the Transistorized Inverters are introduced for making inverters more compact, reliable and suitable for a broader range of application. He talked about working principle of Inverters. He also discussed the Inverter topology and the ongoing trends in Inverter Technology. He briefly explained Intellectual Property Rights (IPRs) like patents, designs, trademarks etc. Lastly, He also briefed about the different measures and the process for Patent, Trademark and Copyright.

At last, **Dr. Sarfaraz Nawaz (HOD EE Dept., SKIT)** presented a memento to the guest speaker and the vote of thanks was presented by the student host. In this way, the session lasted for two hour and ended at 02:30 P.M.

### **Day-2**

**Date: 18-10-2023**

It was the second day of STTP and the guest speaker of the day was **Mr. Dinesh Kumar (Assistant Professor, ECE Dept., SKIT)**. The session was commenced at 12:30 P.M. with a welcome note to the speaker by the student host.

Mr. Dinesh Kumar talked about the power electronic devices such as MOSFET, thyristor and their Ampere ratings.

He also talked about the PC817, an opto-coupler also called an opto-isolator, photo-coupler and optical isolator is one kind of semiconductor device that allows the electrical signal to transmit between two isolated circuits through light. Later he discussed about the projects and work he had done during pandemic for the betterment of society. He motivated students for practical learning and students must make projects with their studies. Later, He talked about lithium-ion battery is a type of rechargeable battery which uses the reversible reduction of lithium ions to store energy. He also briefed about Battery Management System (BMS) is technology dedicated to the oversight of a battery pack, which is an assembly of battery cells, electrically organized in a row column matrix configuration to enable delivery of targeted range of voltage and current for a duration of time against expected load scenarios. He discussed about an water level sensor, TDS sensor, pH sensor etc. Lastly, he talked about current sensor which is a device that detects and converts current to an easily measurable output. He also explained about the Lipo cells and the components of circuit of power converters. He made the students aware about the importance of making projects with your studies.

At last, **Dr. Prateek Kumar Singhal (Associate Professor, EE Dept., SKIT)** presented a momento to the guest speaker and the vote of thanks was presented by the student host. In this way, the session lasted for two hours and ended at 2:30 P.M.

### **Day-3**

**Date: 19-10-2023**

It was the third day of STTP and the guest speaker of the day was **Dr. Nand Kishore Gupta (Associate Professor, Department of Electrical & Electronics Engineering, Poornima University, Jaipur)**. The session was commenced at 12:30 P.M. with a welcome note to the speaker by the student host.

Dr. Nand Kishore Gupta first threw light on the types of battery and their uses in different devices and the Lithium ion batteries in Electric Vehicles. He talked about the meaning of conversion and the use of inverters in daily life. He also talked about the need analysis of power converters as the task of a power converter is to process and control the flow of electric energy by supplying voltages and currents in a form that is optimally suited for the user loads. He talked about the stability and reliability of the power converters. He also discussed about the Blackout and the reasons behind the situation of blackout. He explained about the Issues and challenges in power converters.

He briefly explained about the different power electronic based converters and diode based converters. He also explained about different innovations of power converters in electric vehicles.

At last, **Dr. Prateek Kumar Singhal** and **Mr. Tarun Naruka** presented a momento to the guest speaker and the vote of thanks was presented by the student host. In this way, the session lasted for two hour and ended at 02:30 P.M.

#### **Day-4**

**Date: 20-10-2023**

It was the fourth day of STTP and the guest speaker of the day was **Dr. Manoj Kumawat (Assistant Professor, NIT Delhi)**. The session was commenced at 12:30 P.M. with a welcome note to the speaker by the student host.

Dr. Manoj Kumawat first talked about the designing of restructured power system. He talked about the Grid Integration and grid integration of renewable energy which means reimagining operation and planning for a reliable, cost-effective, and efficient electricity system with cleaner new energy generators. Later he explained about the load flow analysis that can help prevent power system overloads and decrease your risk of a short circuit or a blowout. He also explained about backward and forward load flow analysis algorithm in power system. Lastly he also briefed about Transmission and Distribution system analysis.

At last, Dr. Prateek Kumar Singhal Sir and Mr. Tarun Naruka Sir presented a momento to the guest speaker and the vote of thanks was presented by the student host. In this way, the session lasted for two hour and ended at 02:30 P.M.

#### **Day-5**

**Date: - 21-10-2023**

It was the fifth day of STTP and the guest speaker of the day was **Dr. Devendra Somwanshi Sir (Registrar, Poornima College of Engineering, Jaipur)**. The session was commenced at 12:30 P.M. with a welcome note to the speaker by the student host.

Dr. Devendra Somwanshi Sir first talked about the significance of AC and DC. Then he discussed about Power Converters and the different converters that converts AC to AC, AC to DC, DC to DC and DC to DC. He also discussed about the brief history of the converters. He discussed about different types of filters in power converters, semiconductor switches, control circuits (such as microcontroller), feedback components, protection components etc.

Later he discussed about the problems that arises with the battery of electric vehicles. Lastly he talked about the silicon carbide and gallium nitride switches.

At last, Dr. Sarfaraz Nawaz (HOD, EE, SKIT) presented a momento to the guest speaker. In this way, the session lasted for two hours and ended at 02:30 P.M.

## **15. Words of Acknowledgement**

I believe that guidance, support and blessings are the incomparable qualities that my gratitude to our Chairman, **Shri Surja Ram Meel**, Director, **Shri Jaipal Meel** and Registrar, **Smt. Rachna Meel** for providing unconditional freedom and financial support to execute this student's workshop.

I would like to extend a special thanks to Dr. Sunil Kumar Gupta (Dean R&D, Poornima University, Jaipur) for educating the students about applications of inverters in daily life and their history.

I would also like to thank Dr. S.L. Surana, Director (Academics) and Prof. (Dr.) Ramesh Kumar Pachar, Principal (SKIT) to allow me to execute this workshop in the college campus and for your guidance.

I would also thank to Dr. Sarfarz Nawaz, Head of Electrical Engineering Department, SKIT for consisting contribution in this workshop.

I would also like to thank all the technical and non-technical staff members for providing their valuable time for the successful execution of this workshop.

I would also thank to all our participants and students for their participation in this workshop and my best wishes to all the students for their bright future and life.